

What is claimed is:

1. A cation exchange chromatography process for purifying a peptide from a mixture comprising said peptide and related impurities, the process comprising the steps of:
 - 5 a) eluting said related impurities of said mixture in a solution comprising an organic modifier, water, optionally a salt component and optionally a buffer, at a linear or step gradient or isocratically in salt component, and at pH-values optionally maintained with a buffer so that said peptide has a positive local or overall net charge and said related impurities have a local or overall positive net charge which is lower than the positive net charge of said peptide so
 - 10 as to remove said related impurities; and
 - b) subsequently, eluting said peptide by a step or linear change to an aqueous solvent optionally with a salt component, at the same or higher pH-values optionally maintained with a buffer.
- 15 2. An anion exchange chromatography process for purifying a peptide from a mixture comprising said peptide and related impurities, the process comprising the steps of:
 - a) eluting said related impurities of said mixture in a solution comprising an organic modifier, water, optionally a salt component and optionally a buffer, at a linear or step gradient or isocratically in salt component, and at pH-values optionally maintained with a buffer so that
 - 20 said peptide has a negative local or overall net charge and said related impurities have a local or overall negative net charge which is lower than the negative net charge of said peptide so as to remove said related impurities; and
 - b) subsequently, eluting said peptide by a step or linear change to an aqueous solvent optionally with a salt component, at the same or lower pH-values optionally maintained with a
 - 25 buffer.
3. An industrial method for producing a pure peptide, the method including a cation exchange chromatography process for purifying a peptide from a mixture comprising said peptide and related impurities, the method comprising the steps of:
 - 30 a) eluting said related impurities of said mixture in a solution consisting essentially of an organic modifier, water, optionally a salt component and optionally a buffer, at a linear or step gradient or isocratically in salt component, and at pH-values optionally maintained with a buffer so that said peptide has a positive local or overall net charge and said related impuri-

ties have a local or overall positive net charge which is lower than the positive net charge of said peptide so as to remove said related impurities; and

b) subsequently, eluting said peptide by a step or linear change to an aqueous solvent optionally with a salt component, at the same or higher pH-values optionally maintained with a buffer.

4. An industrial method for producing a pure peptide, the method including an anion exchange chromatography process for purifying a peptide from a mixture comprising said peptide and related impurities, the method comprising the steps of:

a) eluting said related impurities of said mixture in a solution consisting essentially of an organic modifier, water, optionally a salt component and optionally a buffer, at a linear or step gradient or isocratically in salt component, and at pH-values optionally maintained with a buffer so that said peptide has a negative local or overall net charge and said related impurities have a local or overall negative net charge which is lower than the negative net charge of said peptide so as to remove said related impurities; and

b) subsequently, eluting said peptide by a step or linear change to an aqueous solvent optionally with a salt component, at the same or lower pH-values optionally maintained with a buffer.

5. A method for isolating a peptide, the method including purification of a peptide from a mixture containing said peptide and related impurities via a cation exchange chromatography process, the cation exchange chromatography process comprising the steps of:

a) eluting said related impurities of said mixture in a solution comprising an organic modifier, water, optionally a salt component and optionally a buffer, at a linear or step salt component gradient or isocratically, and at pH-values optionally maintained with a buffer so that said peptide has a positive local or overall net charge and said related impurities have a local or overall positive net charge which is lower than the positive net charge of said peptide so as to remove said related impurities,

b) subsequently, eluting said peptide by a step or linear change to an aqueous solvent optionally with a salt component, at the same or higher pH-values optionally maintained with a buffer;

and subsequently, if necessary, subjecting to analytical tests and/or further purification, and isolating said peptide in a conventional manner.

6. A method for isolating a peptide, the method including purification of a peptide from a mixture containing said peptide and related impurities via an anion exchange chromatography process, the anion exchange chromatography process comprising the steps of:

- 5 a) eluting said related impurities of said mixture in a solution comprising an organic modifier, water, optionally a salt component and optionally a buffer, at a linear or step salt component gradient or isocratically, and at pH-values optionally maintained with a buffer so that said peptide has a negative local or overall net charge and said related impurities have a local or overall negative net charge which is lower than the negative net charge of said peptide so as to remove said related impurities,
- 10 b) subsequently, eluting said peptide by a step or linear change to an aqueous solvent optionally with a salt component, at the same or lower pH-values optionally maintained with a buffer;

and subsequently, if necessary, subjecting to analytical tests and/or further purification, and isolating said peptide in a conventional manner.

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7. The process of claim 1, wherein said peptide to be purified is selected from polypeptides, oligopeptides, proteins, receptors, vira, as well as homologs, analogs and derivatives thereof.

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8. The process of claim 1, wherein said peptide to be purified is selected from glucagon, hGH, insulin, FactorVII, FactorVIIa, FactorVIIai, FFR-FactorVIIa, glucagon-like peptide-1, glucagon-like peptide-2 and analogs, as well as derivatives thereof.

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9. The process of claim 1, wherein the ratio of organic modifier to water on a weight percent basis is from 1:99 to 99:1.

10. The process of claim 1, wherein the organic modifier is selected from C₁₋₆-alkanol, C₁₋₆-alkenol, C₁₋₆-alkynol, urea, guanidine, C₁₋₆-alkanoic acid, C₂₋₆-glycol, or C₃₋₇-polyalcohol.

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